# UNDERSTANDING CANCER BIOMARKER TESTING

MCGI *Maine Cancer Genomics Initiative*

The Jackson Laboratory

**Biomarkers** are chemical changes (differences) in the body's cells and in cancer cells. Patterns in biomarkers may show why your cancer started or what could cause it to grow. **Biomarker testing**, also called genomic tumor testing, molecular testing, next generation sequencing (NGS) or tumor profiling, studies **cancer cells** found in **tumor tissue** (or blood).

## WHY IS BIOMARKER TESTING DONE?

Biomarker testing can help your doctor learn if a different cancer treatment could be right for you. These are called "**targeted therapies**" or "**immunotherapies**". That is because certain biomarkers can be "targeted" with these treatments. These treatments are different than standard treatments, such as **chemotherapy** and **radiation therapy**. Not everyone who has biomarker testing will have a targeted treatment to try. Some targeted treatments are only available through **clinical trials**. Biomarker testing may also give information about a person's **prognosis** (how cancer may progress).

## DOES EVERYONE WITH CANCER NEED BIOMARKER TESTING?

*No.* Some cancers do not have biomarkers that will affect a person's treatment at this time, so testing would not be useful. In some cases, standard cancer treatment is the best option, and targeted treatment is not needed. You can ask your cancer care team if biomarker testing should be part of your treatment plan.

## HOW IS BIOMARKER TESTING DONE?

Biomarker testing requires a piece of tumor tissue or blood that contains cancer cells. Tumor tissue may be available for testing, or you may need to have a new **biopsy** or blood draw. Your cancer care team will sort out what is needed and arrange for samples to be sent for biomarker testing.

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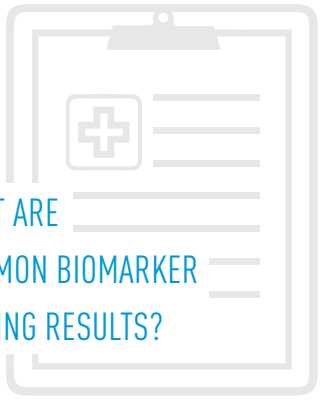

## WHAT ARE COMMON BIOMARKER TESTING RESULTS?

### ✓ *Actionable Results Found*

- 1 or more actionable biomarkers was found in your cancer
- There may be new or different treatment(s) options to discuss with your doctor

### ✗ *No Actionable Results Found*

- No currently actionable biomarkers were found in your cancer
- The test did not identify a new treatment option that would work better than the current treatment you are receiving

### ∅ *No Result*

- Your testing did not give a result. This can happen for a few reasons, such as not having enough tumor tissue. It does not mean that there is a problem
- The test did not identify a new treatment option that would work better than the current treatment you are receiving

## IS BIOMARKER TESTING THE SAME AS GENETIC TESTING?

*No.* **Genetic testing** looks for changes in **DNA** and **genes** found in all cells of your body. These changes can be traits or risk factors for a disease. You may have inherited these changes from your parents, or you may pass them on to your children. Biomarker testing looks for changes only found in your cancer cells.

## IS IT OK TO ASK THE CANCER CARE TEAM QUESTIONS?

*Yes.* Questions help you and your cancer care team learn and discuss what's important to you. Below are some questions that can kick off a conversation about biomarker testing:



*Can I get a copy of my test results?*

*How will this testing change my treatment?*

*Would it help us to get a second opinion about my results?*

*Will insurance pay for my biomarker testing and treatment? If not, is there someone available to help me figure out if there is help to cover the costs?*

Explore terminology in our glossary at **www.jax.org/glossary**.

For more information about biomarker testing, go to **www.jax.org/patients**.

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